

Application Number: 10/532,178  
Amendment dated: May 4, 2010  
Reply to Office Action of: March 4, 2010

**Non-Marked version of the Claims**

1 – 28 (Cancelled)

32. (Previously Presented) A method for analyzing a change in the functionality of the heart and the respiratory system of a patient, comprising:

- identifying the respiratory activity [22] and cardiac sounds [20], wherein said identifying comprises:
  1. collecting at least said cardiac sounds [20] by the means of at least one microphone;
  2. separating said cardiac sounds [20] apart from the sounds related to said respiratory activity [22], by the means of a signal conditioning module [28];
- temporally segmenting said respiratory and said cardiac sounds to express the segments of physiological rhythmicity, by the means of a feature extraction module [30];
- extracting stable features of the heart sounds with respect to their timing in the respiratory cycle, thus providing synchronized stable features for diminishing stochastic variability, by the means of a timing analysis module [32];
- averaging the features of segments of heart sounds with respect to the corresponding respiratory cycle; wherein said averaging resulting averages in which the temporal variability of said segments is preserved;
- determining the extent of temporal variability in groups of synchronized stable sound features, and
- detecting change over time of at least one feature in a synchronized stable sound relative to a baseline, by the means of a temporal segmentation and feature parameter extraction module [34].

33. (Previously Presented) A method for analyzing a change in the functionality of the heart and the respiratory system of a patient as in claim 29, said method used for